Fig. 1.

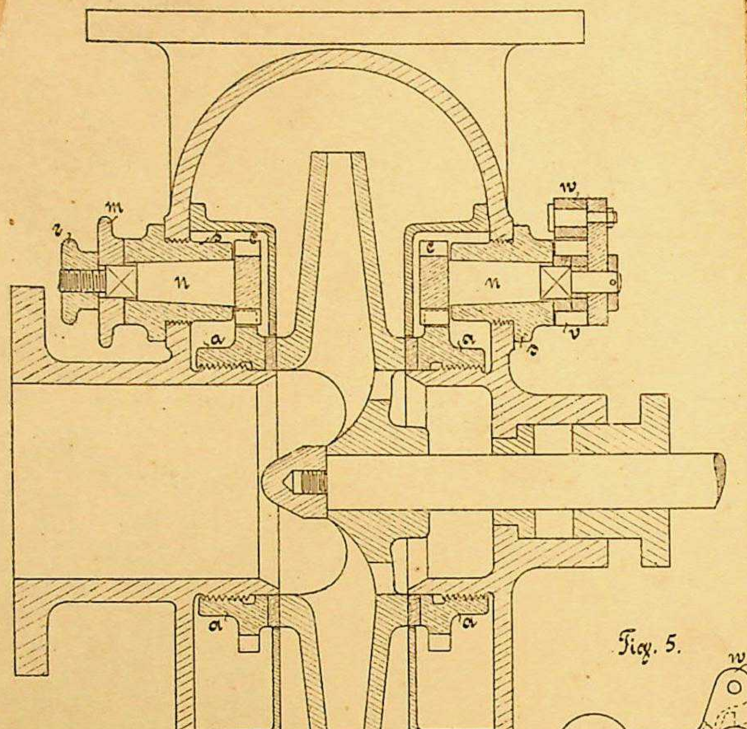


Fig. 5.

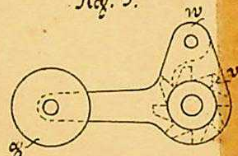


Fig. 2.

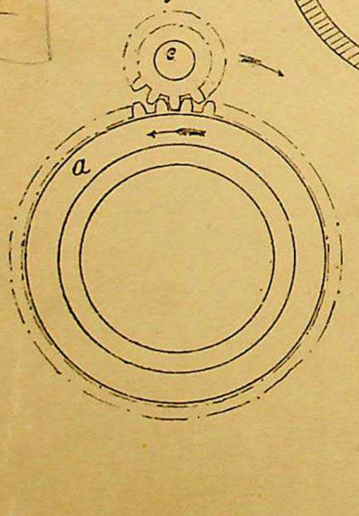


Fig. 3.

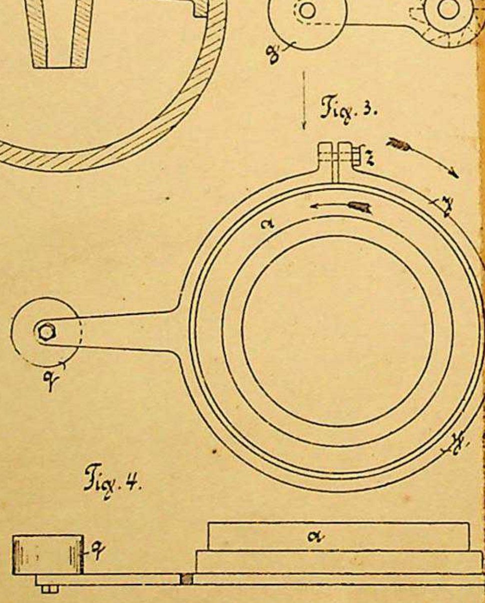


Fig. 4.

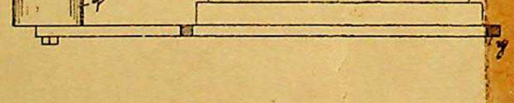
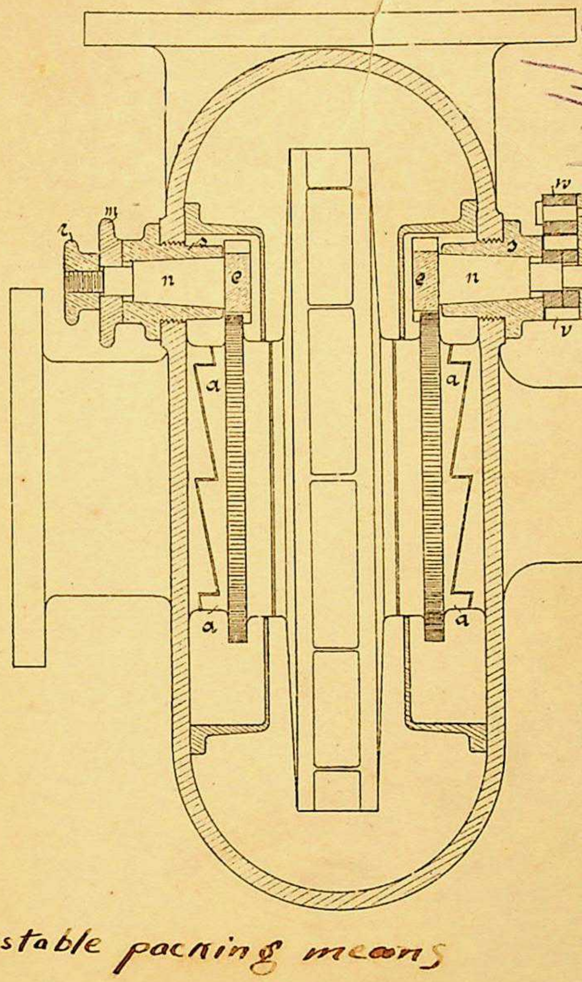


Fig. 6.



Adjustable packing means
(See spec. translation)

Austria
15-214.1 AU 341 40102
OE 0006025
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OE-1901-02
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Gen. 117218

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Nº 60
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Class 59: Pumps and Water Elevators.

b. Centrifugal Pump.

EMIL HERMANN NACKE in KOTITZ bei COSWIG i. S.

Adjustable Packing between the Ends of the Suction Pipeand the Side Walls of the Wing Wheel of Centrifugal Pumps and Blowers.

Ap. February 22 1901; Pr. February 14 1900 (German Patent 117218); Beg. July 15 1901.

In centrifugalpumps and blowers the ring shaped packing places between the ends of the suction pipes and the sides walls of the wing wheel are subjected to wear, especially in the case of conveyance in impure , sandy liquids and dusty gases. If these packing places are made adjustable by set screws, then the case easily arises, that the same are pressed to too hard against the wing wheel and then there takes as well a friction (rubbing) as aslo a wear on the packing surfaces. In the sense of the invention these packing surfaces are now made adjustable in this way, that a strong pressing up of the same is prevented by the friction arising between the packing surfaces, that this friction therefore disappears of itself as it came.

The short pipe pieces <u>a</u> surround in the ends of the suction pipes annularly in fig 1 - 4. On their front sides turned towards the wing wheel they have annular packing surfaces that are intended to pack against the opposite surfaces of the wing wheel. The pipe pieces <u>a</u> <u>a</u> receive at their inner circumference screw threads and thereby are screwed on in a way to be easily released onto the ends of the suction pipes provided with similar screw threads Therefore by turning the pipe pieces <u>a</u> <u>a</u> their front packing surfaces can easily be made to approach those of the wing wheel , or separate therefrom. To prevent a strong pressing against the wing wheel, I providethe one pipe piece with righthand and theohter with lefthand screw thread and select the direction of the thread so that the pipe pieces approach the wing wheel with their packing surfaces, when they are turned opposite to the direction of circukation of the same. Then these packing never allow themselves to be pressed fast lastingly against the wing wheel , but the wing wheel turns the same, , by means of the friction arising between wheel and ring, at once back so far, that this friction ceases, the rings therefore remain standing at a very small distance from the wing wheel, in which they pack sufficiently, without occasioning injurious friction.

Instead of providing the pipe pieces a a with full sdrew threads, they may also be provided with helical surfaces, which are formed as plant 5 and 6 show. In this case the end of the pipe pieces á á to lie towards the casing or the lid carries the helical surfaces, which approach the packed-off to the wing wheel, when the same are turned apposite to the direction of rotation of the wing wheel.

In order to adjust the rings hendily from the outside, they can be provided on their circumference with a toothingand turn them from the outdde by small gears c sitting on the shafts n n. For this purpose the shafts n are packed in the wall of the casing with stuffing boxes or conical bushings s s and carry on the outside adjusting wheels m with counter nuts r, fig. 1. If we wish to adjust the inner packing of the wing wheel we need only turn t the adjusting wheel m in the same dizection, in which the wing wheel runs, until we feel by the resistance, that the inner surfaces touch, if we then release the adjusting wheel m, the then there occurs through the friction arising at the wing wheel, a small reversed movement of the packed- off pipe piece, a, whereby it adjusts itself at a very small distance, so that no more friction takes place. Then by turning the counter nut r this distance is fixed.

This arrangement can also be operated by weight or spring, to make it automatically adjuatable, when it begins to wear.

We can, for instance, in fig. 1, right side, set a ratchet v on the shaft n and press a pawl w, fig. 1 and 5, that gears with it, by a weight g into the direction of the rotation of the wing wheel. This pressure is propagated through shat n and gear c to the toothing of a, moves a contrary to the rotation of the wheel and thereby packs it against the wheel, in which case the friction resulting,prevents any too violent pressing together of the packing surfaces. The weight is naturally so selected, that it is just sufficient, to overcome the frictional resistances of the adjusting device, without exerting an injurious excess of pressure on the packing surfaces. Only after rather long space of time is it necessary in this case to adjust this arrangement one tooth farther by lifting the weight overthe middle position.

In fig. 3 there is shown an arrangement serving for the same purpose, in which the toothed crown and the gearing c, as well as th3 shaft n, etc., are omitted, and the automatic adjustment is entirely within the pump casing. The device consists in this case of a